

CLAIMS

What is claimed is:

- 5           1. A method for communicating a packet from a sending device coupled to a wireline subnet to a mobile station served by a base station connected to the wireline subnet, the method comprising
- storing a shadow address in the base station, the shadow address uniquely identifying the mobile station and having a format compatible with the link layer of the
- 10   wireline subnet, and
- transmitting the packet from the sending device over the wireline subnet to the base station using the shadow address as the link layer destination address of a link layer frame containing the packet.
- 15           2. The method as recited in claim 1 wherein the link layer of the wireline subnet is different than the link layer of the wireless network serving the mobile station, and the storing includes assigning the shadow address to the mobile station by the base station.
3. The method as recited in claim 2 wherein the transmitting includes
- 20   communicating the shadow address from the base station to the sending device in response to an address resolution request by the sending device.

4. The method as recited in claim 1 further comprising, after the transmitting, sending the packet from the base station to the mobile station using a link layer frame compatible with the link layer of the wireless network.

5 5. The method as recited in claim 1 wherein the mobile station has an IP layer address and the storing includes storing the IP layer address, the shadow address, and the wireless link layer address as entries for the mobile station.

6. A method for communicating a packet from a sending device coupled to a wireline subnet to a mobile station served by a base station connected to the wireline subnet, the method comprising

assigning a unique shadow address to the mobile station, the shadow address having the same format as the link layer address of the wireline subnet,

storing the shadow address in the base station,

15 transmitting the shadow address from the base station to the sending device in response to an address resolution request by the sending device, and

transmitting the packet from the sending device over the wireline subnet to the base station using the shadow address as the link layer destination address of the packet.

20 7. The method as recited in claim 6 further comprising, after the second transmitting, sending the packet from the base station to the mobile station using a link layer frame compatible with the link layer of the wireless network.

8. The method as recited in claim 6 wherein the mobile station has an IP layer address and the storing includes storing the IP layer address, the shadow address, and the wireless link layer address as entries in a watch list for the mobile station.

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9. The method as recited in claim 8 wherein the address resolution request includes the IP layer address of the mobile station, and wherein the method further comprises, after the storing, looking up the shadow address in the watch list with reference to the IP layer address contained in the address resolution request.

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10. A method for servicing a mobile station by a base station connected to a wireline subnet, the method comprising

sending a request to associate from the mobile station to the base station,

and

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assigning a shadow address to a mobile station by the base station, the shadow address having the same format as the link layer address of the wireline subnet.

11. The method as recited in claim 10 further comprising, after the assigning, storing the shadow address in the base station.

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12. The method as recited in claim 10 wherein the assigning includes associating an IP layer address with the mobile station.

13. The method as recited in claim 11 further including, after the assigning, storing the IP layer address, the shadow address, and the wireless link layer address of the mobile station in a watch list in the base station.

5 14. The method as recited in claim 10 further comprising, after the assigning, transmitting the shadow address to the mobile station.

15. A method for communicating packets between a station and a mobile station comprising the steps of:

10 storing a shadow address in the base station, the shadow address serving as a unique identifier of the mobile station;

examining, at the base station, each packet received to determine if the shadow address of the packet matches one of the said stored shadow addresses; and

15 communicating from the base station, each examined packet for which there is a match to the appropriate mobile station.

16. The method of claim 15 wherein said step of communicating further includes the steps of:

20 stripping of the shadow address of each examined packet for which there is a match to produce an IP packet;

processing said IP packet produced in an IP layer processor sending in the base station; and

communicating said processed IP packet to the base station radio interface

channel corresponding to the mobile station.

17. The method of claim 15 wherein said step of communicating further includes the step of switching each examined packet for which there is a match to the base station radio interface channel corresponding to the mobile station.

18. The method of claim 15 wherein said stored shadow addresses are generated by assigning, by the base station, a unique wireline layer -2 address to the mobile station.

19. A base station comprising a storage device, wherein said storage device is populated with at least one shadow address which is said to communicate with at least one mobile station.

20. The base station of claim 19 wherein said shadow address comprises a unique layer -2 wireline address.

21. A mobile station comprising a storage having a shadow address that is unique to said mobile station.

22. The mobile station of claim 21 wherein said shadow address comprises a layer -2 wireline address that is unique to said mobile station.